VERSION WITH MARKINGS TO SHOW CHANGES

31. A transmissive device for insertion into a patient's cardiovascular system, comprising:

a catheter with a lumen, the catheter having a proximal portion and a distal portion;

an x-ray source at the catheter distal portion, the x-ray source having a vacuum chamber defined by a chamber wall and containing an anode and cathode for generating an electrical field, the vacuum chamber having a diameter less than 3 mm;

an electrically insulating material positioned between the vacuum chamber wall and the anode at joints of the vacuum chamber wall; and

a flexible coaxial cable in the lumen and operably coupled to the x-ray source, the coaxial cable having an outer diameter of three millimeters or less wherein the cable is capable of conducting a voltage greater than or equal to 10 kilovolts without electrical discharge.

34. (Once Amended) The device of claim 31 wherein the [cable is connected at a distal end to a unit requiring] x-ray source requires a voltage of greater than or equal to 10 kilovolts.

37. (Once Amended) The device of claim 31 wherein the device is sized to be inserted into [a lumen] a blood vessel of the body and the device has a maximum diameter of 3.0 millimeters.

38. (Once Amended) The device of claim 31 wherein the device is sized to be inserted into [a lumen] a blood vessel of the body and the device has a maximum diameter of 2.5 millimeters.

39. (Once Amended) The device of claim 31 wherein the device is sized to be inserted into [a lumen] a blood vessel of the body and the device has a maximum diameter of 1.5 millimeters.

41. A device for insertion into a patient's cardiovascular system, comprising:

a catheter with a lumen the catheter having a proximal portion and a distal portion an x-ray source at the catheter distal portion, the x-ray source comprising a composite structure comprising a housing that joins a cathode and an anode, wherein the housing is composed of boron nitride and has a diameter less than 3 mm; and

a flexible coaxial cable in the lumen and operably coupled to the x-ray source.